REMARKS

Claims 4, 5, 7, 10, 14, 17 and 18 are pending in the present application. Claims 1, 6, 8, 9, 11, 12, 13, 15, 16, 19 and 20 were previously canceled. Claims 2, 3 and 21 have been currently canceled. Claims 4 and 7 have been amended.

Applicant respectfully requests reconsideration of the application in view of the foregoing amendments and the remarks appearing below, which Applicant believes places the application into condition for allowance.

Rejections Under 35 U.S.C. § 102

Kitamura et al.

Claim 21 stands rejected under 35 U.S.C § 102(b) as being anticipated by U.S. Patent No. 5,508,879 to Kitamura et al., on the assertion that Kitamura et al. disclose all of the limitations of this claim.

Applicant has canceled claim 21 to expedite prosecution of the present application. Therefore, the present rejection is moot, and Applicant respectfully requests withdrawal of the present rejection. Applicant, however, does not necessarily concede the propriety of the rejection.

Rejection Under 35 U.S.C. § 103(a)

Bahten/Hawn/Lur et al./ConductivePlastics.com

Claims 2, 3, 7, 10-14, 17, 18 and 21 stand rejected under 35 U.S.C § 103(a) as being obvious in view of a combination of U.S. Patent No. 6,182,323 to Bahten, the Hawn IBM Technical Disclosure Bulletin, U.S. Patent No. 6,743,721 to Lur et al., and ConductivePlastics.com Webpage. The USPTO asserts that Bahten teaches all of the limitations of these claims, except for the feature of electrically grounding the rotating microelectronics wafer cleaning member. Applicant respectfully disagrees.

Bahten discloses porous polymeric scrubbing brushes for cleaning particulate contaminants from, among other things, microelectronics wafers. Bahten also discloses that these brushes are used in wafer cleaning apparatuses. The Bahten brushes are made of polymers, such as polyvinyl acetal and polyurethane, containing very little impurities.

The Hawn Bulletin describes removing unwanted electrostatic charges from photoconductive plates using a soft grounded brush with multiple conductive points that come into intimate contact with the surface being discharged.

Lur et al. disclose a microelectronics wafer having a dielectric surface. Lur et al. also disclose a cluster tool having various wafer processing stations for fabricating and handling wafers.

The ConductivePlastics.com Webpage discloses a conductive polyurethane foam that is touted for its cleanliness, i.e., lack of sloughing and particulation.

Turning now to the rejected claims, independent claim 10 as previously presented includes the limitation of "cleaning said surface of said microelectronics wafer with a conductive rotating wafer-cleaning member so as to remove at least some of the surface contaminants, and so as to simultaneously create an electrical ground path between said surface and an electrical ground through said conductive rotating wafer-cleaning member." [Emphasis added.] Similarly, independent claim 17 as previously presented includes the limitation of "a conductive rotating wafer-cleaning member operatively configured to engage said surface of microelectronics wafer in said wafer cleaning region so as to remove contaminants from said surface and provide part of a grounding path between said microelectronics wafer and said electrical ground for removing electrical charge from said microelectronics wafer." [Emphasis added.]

Assuming for the sake of argument that the Conductive Plastics Webpage is proper prior art (it is not clear what the 2003 copyright notice at the bottom of the Webpage applies to), Applicant respectfully submits that the present rejection is improper because the assertion that the Conductive Plastics conductive foam could be used in place of the high-purity foam of the Bahten wafer-cleaning brushes renders Bahten's brushes unsatisfactory for their intended purpose in violation of MPEP § 2143.01(V).

MPEP § 2143.01(V) states that a proposed combination of teachings can be improper where a proposed modification renders the prior art unsatisfactory for its intended purpose. As set forth in the response to a prior Office Action in this application, Bahten discloses polymer foam microelectronics-wafer-cleaning brushes having very low levels of impurities as compared to conventional (non-conductive) polymer foam brushes. See, e.g., Bahten's Table 1A, col. 4. Indeed, Bahten touts that the "present devices have fewer impurities and/or particulates than conventional foam products." Bahten patent, col. 4, lines 28-29. Bahten further asserts that

"Based on Table 1A, it is clear that the present invention provides a much cleaner device than conventional ones." Bahten patent, col. 4, lines 43-44. Consequently, Bahten teaches very clean, non-conductive brushes for providing exceptional micro-electronics wafer cleaning capability.

The Conductive Plastics Webpage describes conductive flexible polyurethane foam and pink antistatic foam for packaging. The Webpage states: "An outstanding advantage for using Conductive Plastics conductive foam is cleanliness. There is no sloughing. It's non-corrosive and does not particulate." From the photograph and description of the application of the Conductive Plastics' foam (i.e., packing material), it is clear that the Conductive Plastics' foam is very low density foam and has a character much different from the foam of Bahten, as those skilled in the art would readily appreciate.

Applicant respectfully asserts that the packing foam of the Conductive Plastics is of such a different character than the foam of the Bahten brushes that it is improper for the U.S. Patent and Trademark Office (USPTO) to assert the combination without further evidence that the references could indeed be combined to produce the same cleaning prowess of the Bahten brushes. In particular, while the Conductive Plastics Webpage addresses the packing foam's "cleanliness," those skilled in the art would readily understand that cleanliness in the realm of packing materials (where cleanliness is measured in terms of lack of macro- or meso-scale sloughing and particulation) is far different from cleanliness in the field of microelectronics wafer cleaning wherein cleanliness is measure in terms of microparticles.

Furthermore, while Conductive Plastics notes the cleanliness of its packing foam, this does not address the purity of the foam in terms of impurities that make it conductive. Surely the Conductive Plastics packing foam contains impurities that make it conductive. While these impurities may not impact the macro- or even meso-scale cleanliness of the foam, Applicant respectfully asserts that they may indeed impact the micro-scale cleanliness needed in the micro-scale regime of microelectronics wafer cleaning (as those skilled in the art would readily recognize).

In view of the foregoing, Applicant respectfully asserts that because the Conductive Plastics' packing foam likely includes impurities that make it conductive and also less clean than the Bahten brushes in terms set forth in the Bahten patent, the combination is improper as being contrary to Bahten's teachings of a very low impurity foam for enhanced cleaning capabilities.

In addition, Applicant respectfully asserts that the combination is improper because it does not address the fact that there is no evidence that the Conductive Plastic's packing foam is truly clean in the micro-scale regime needed for microelectronics wafer cleaning. In view of the foregoing, if the USPTO continues the present rejection, Applicant respectfully requests evidence that the Conductive Plastics packing foam could in fact provide the superior wafer cleaning ability of Bahten's low-impurity non-conductive brushes. Otherwise, Applicant believes the combination is improper because the substitution of the Conductive Plastics' foam for Bahten's foam would render the Bahten brushes unsatisfactory for their intended purpose of providing superior wafer-cleaning capability to conventional higher-impurity wafer-cleaning brushes.

Because the base combination of the Conductive Plastics' teachings with Bahten's teachings is improper for at least the foregoing reasons, Applicant respectfully requests that the Examiner withdraw the present rejection.

Bahten/Hawn/Lur et al./Kitamura et al./ConductivePlastics.com

Claims 4 and 5 stand rejected under 35 U.S.C § 103(a) as being obvious in view of a combination of the Bahten, Hawn Bulletin, Lur et al., and Kitamura et al. references, each discussed above. Applicant respectfully disagrees.

The Bahten, Hawn Bulletin, Lur et al., and Conductive Plastics references are as described above relative to the obviousness-type rejection.

Kitamura et al. disclose a charge removal brush that includes a number of long, conductive filamentous elements for removing charges from an object when the charge removal brush comes in contact with the object, is disclosed. The charge removal brush includes a metal shaft rotatable about the axis thereof, a strip-like woven cloth including a base cloth and long conductive filamentous elements uniformly planted in the substantially entire surface of the base cloth, the strip-like woven cloth being spirally wound on the metal shaft with no gap, and a conductive fiber is woven into the base cloth in a state that the conductive fiber runs along the center line of the base cloth, which is extended in the lengthwise direction of the base cloth.

As discussed above relative to the obviousness-type rejection in view of the Bahten/Hawn/Lur et al./ConductivePlastics.com combination, Applicant believes that at least the combination of the Conductive Plastics' teachings with the Bahten teachings is improper relative to the claims from which claims 4 and 5 depend. The additional combination with the Kitamura

et al. patent, in Applicant's view, does not remedy the shortcomings of this improper combination. Consequently, it is Applicant's position that the Bahten/Hawn/Lur et al./ConductivePlastics.com/Kitamura et al. combination does not render claims 4 and 5 obvious.

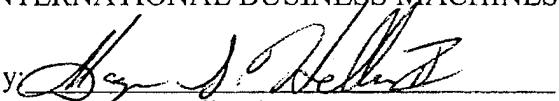
For at least this reason, Applicant respectfully requests that the Examiner withdraw the present rejection.

CONCLUSION

In view of the foregoing, Applicant submits that claims 4, 5, 7, 10, 14, 17 and 18, as amended, are in condition for allowance. Therefore, prompt issuance of a Notice of Allowance is respectfully solicited. If any issues remain, the Examiner is encouraged to call the undersigned attorney at the number listed below.

Respectfully submitted,

INTERNATIONAL BUSINESS MACHINES CORP.

By 

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